Amendments to the Claims

The Listing of Claims shown below will replace all prior version and listings of claims in the Application for patent.

1-60.   (Canceled)

61.   (Currently Amended) A method for determining coordinates of a feature comprising:

providing a first image including the feature, the first image comprising a plurality of pixels;

determining a first estimate of coordinates of the feature to within a fraction of a pixel;

translating the feature relative to the pixels by a pixel translation value, wherein the sum of the pixel fraction and pixel translation value is an integer value;

determining a second estimate of coordinates of the translated feature to within a fraction of a pixel; and

summing the pixel fractions of the first estimate with the second estimate to derive a refined estimate of coordinates.

62.   (Previously Presented) The method according to claim 61, wherein each of the first and second determining steps comprise:

correlating the feature and the image using a predetermined correlation function to determine coordinates of the feature to the nearest pixel;

evaluating the correlation function at a plurality of pixel positions in the neighborhood of the determined coordinates to provide a plurality of values;

fitting the plurality of values to a further function; and

differentiating the further function to determine its turning point, whereby coordinates corresponding to the turning point provide coordinates of the feature.

63.   (Previously Presented) The method according to claim 62, wherein the correlation function is evaluated at a plurality of sub-pixel positions.

64.   (Previously Presented) The method according to claim 63, wherein the sub-pixel positions are closer in proximity to the determined coordinates than the pixel positions.

65.   (Withdrawn) The method according to claim 61 further comprising:

determining coordinates of the feature within a second image, the position of the second image being known relative to the first image;

determining the difference in position of the feature between the first image and the second image;

superimposing the first image and the second image to provide a superimposed image, wherein the feature is substantially in registration; and

applying a Super Resolution technique to the superimposed image to provide an increased resolution representation of the feature.

66.   (Previously Presented) The method according to claims 62, wherein the predetermined correlation function is a normalized greyscale correlation function.

67.   (Previously Presented) The method according to claim 61, wherein the translating step, second determining step and summing step are repeated at least once.

68.   (Canceled)

69.   (Previously Presented) An apparatus for determining a position of an object comprising:

an image capture device arranged to provide a captured image encompassing the object, the captured image comprising a plurality of pixels; and

an image processor arranged to receive the captured image and determine the position of the object by executing the method of claim 61.

70.   (Previously Presented) The apparatus according to claim 69 further comprising:
a monitor arranged to receive and display the captured image; and
an object selection means arranged to select a further object within the displayed image and to identify the further object to the image processor.

71.   (Previously Presented) An apparatus for determining a position of an object comprising:

an image capture device arranged to sequentially provide a plurality of captured images of an object, each captured image having a plurality of pixels;

an image processor arranged to sequentially receive the plurality of captured images and determine the position of the object from the plurality of captured images by executing the method of claim 61; and

a position comparator arranged to compare the determined position of the object for the plurality of captured images and identify whether the determined position changes in the plurality of captured images.

72.   (Previously Presented) The apparatus according to claim 71 further arranged to determine the change in the determined position, the change selected from the group consisting of magnitude, direction, and combinations thereof.

73.   (Withdrawn) A method for determining coordinates of a feature comprising:

providing at least two image capture devices each arranged to capture an image including the feature;

determining a position of the at least two image capture devices with respect to the other;

determining coordinates of the feature in accordance with the method of claim 61; and

calculating a 3-dimensional coordinate of the feature given the determined coordinates of the feature and the determined position of the at least two image capture devices.

74.   (Withdrawn) A method for determining a position of an object comprising:

providing at least two image capture devices at a known spatial relationship to one another;

capturing at least two images of the object with each image capture device, the at least two images being captured at a different time from the other;

determining the 2-dimensional position of the object within the at least two images in accordance with the method of claim 61;

calculating the 3-dimensional position of the object from the 2-dimensional position for the at least two images and the spatial relationship of the at least two image capture devices; and

comparing each 3-dimensional position to determine a dimensional change in the object.

75.   (Withdrawn) The apparatus according to claim 69 further comprising:

at least one further image capture device at a known spatial relationship to the image capture device, wherein the image processor is further arranged to determine the position of the object in each captured image and, given the known spatial relationship of each image capture device, determine the 3-dimensional position of the object.

76.   (Withdrawn) The measurement apparatus according to claim 71 further comprising:

at least one further image capture device at a known spatial relationship to the image capture device, wherein the image processor is further arranged to determine the position of the object in each captured image and, given the known spatial relationship of each image capture device, determine the 3-dimensional position of the object.

77.   (Previously Presented) A method for determining coordinates of a feature comprising:

providing at least one image including the feature, the at least one image comprising a plurality of pixels;

correlating the feature and the at least one image using a predetermined correlation function to determine coordinates of the feature to the nearest pixel;

evaluating the correlation function at a plurality of sub-pixel positions in the

neighborhood of the determined coordinates to provide a plurality of values and fitting the plurality of values to a further function; and

differentiating the further function to determine its maximum, whereby coordinates corresponding to the maximum are coordinates of the feature to within a fraction of a pixel.

78-89.   (Canceled)

90.   (New) A method for determining coordinates of an object, the method comprising the steps of:

capturing at least one first image and at least one second image of the object, each image being captured having different coordinates with respect to the other;

determining the position of the object within each image, wherein determining includes;

providing the first image including a feature, the first image comprising a plurality of pixels;

determining a first estimate of coordinates of the feature to within a fraction of a pixel;

translating the feature relative to the pixels by a pixel translation value, wherein the sum of the pixel fraction and pixel translation value is an integer value;

determining a second estimate of coordinates of the translated feature to within a fraction of a pixel;

summing the pixel fractions of the first estimate with the second estimate to derive a

refined estimate of coordinates; and

comparing the determined positions of the object to determine dimensional changes.

91.   (New) The method of claim 61, wherein the refined estimate of coordinates is recorded on a computer readable medium.

92.   (New) The method of claim 90, further comprising determining a 2-dimensional position of the feature within the at least first image and the at least second image, wherein a position of the at least second image is known relative to the at least first image.

93.   (New) The method of claim 92, further comprising calculating a 3-dimensional position of the feature from the 2-dimensional position for the at least two images.

94.   (New) The method of claim 61, further comprising determining coordinates of the feature within a second image, the position of the second image being known relative to the first image.

95.   (New) The method of claim 61, further comprising determining a difference in position of the feature between the first image and at least one second image, wherein the at least one second image includes coordinates and has a position known relative to the first image.

96.   (New) The method of claim 61, further comprising superimposing the first image and a second image to provide a superimposed image, wherein the position of the second image is known relative to the first image, and wherein the feature is substantially in registration.

97.   (New) The method of claim 61,wherein the method is applied for monitoring an aircraft structure.

98.   (New) The method of claim 61, wherein the first image is captured with an image capture device.

99.   (New) The method of claim 90, wherein the coordinates are recorded on a computer readable medium.